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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,289	11/14/2003	Ryoji Fukuhisa	JP920020204US1	1107
48583	7590	06/15/2005	EXAMINER	
BRACEWELL & PATTERSON, LLP			TZENG, FRED	
PO BOX 61389			ART UNIT	
HOUSTON, TX 77208-1389			PAPER NUMBER	
			2651	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/713,289

Applicant(s)

FUKUHISA ET AL.

Examiner

Fred Tzeng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-13 is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/14/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-13 are presented for examination.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

3. Figure 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over the present application admitted prior art in view of Danknick (USPN 5,548,728).

RE claim 1, the present application admitted prior art discloses the invention substantially as claimed. The present application admitted prior art discloses a data storage apparatus (**see page 1 section 0003 lines 1-2; i.e., the external storage apparatus**), comprising: a magnetic disk that magnetically records data (**see page 1 section 0002 lines 2-3; the magnetic disk**); a buffer memory that temporarily retains data read from and written on the magnetic disk prior to a process on the magnetic disk (**see page 1 section 0002 lines 2-3 or section 0003 lines 2-5; the buffer memory**).

However, the presented application admitted prior art does not specifically disclose that the buffer memory includes a memory area divided into a first ring buffer that stores a write request to the magnetic disk accepted from outside, and a second ring buffer that stores data read from the magnetic disk, and that the first ring buffer and the second ring buffer have respective buffer size that are varied by changing a position of a partition for separating the first ring buffer from the second ring buffer.

Danknick teaches that a ring buffer can be partitioned into two partitions, wherein while one partition is used for writing process, the other partition is used for reading process (**see column 27 lines 55-60**). And that the ring buffer can be further divided

into finer granularities in those situations where two ring segments are insufficient (**see column 27 lines 61-65**) implies that the size of the two partitions can be changed or varied according to needs by changing the position of the partition which for separating the ring buffer into two partitions or two ring buffers.

The present application admitted prior art and Danknick are combinable because they are from the same field of endeavor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the admitted prior art by including a ring buffer which can be partitioned into two partitions, one for writing process while the other one for reading process, and size of the two partitions can be varied or changeable (**see Danknick, column 27 lines 55-65**) in order to improve the performance of data write/read process by shorting the waiting time required for execution of writing or reading data as expressly taught by Danknick at column 27 lines 66-67 and column 28 lines 1-7.

RE claim 2, Danknick and the rationale above discloses that the partition is a bottom page of the first ring buffer or a bottom page of the second ring buffer (**see column 27 lines 55-65 and column 1 lines 43-49; i.e., since the partition is the dividing line for the ring buffer for separating it into two parts for circularly addressing respectively, it could be the bottom page for the first ring buffer or a bottom page for the second ring buffer**).

Allowable Subject Matter

6. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

Claim 3 is allowable over the prior art of record because none of the prior art of record teaches or fairly suggests shifting the partitioning of a ring buffer according to external access patterns to a magnetic disk.

8. Claims 4-13 are allowed.

9. Claims 4-8, 13 are allowable over the prior art of record because none of the prior art of record teaches or fairly suggests that a buffer control means changes respective buffer sizes of the first ring buffer and the second ring buffer included in the buffer means according to external access patterns to the recording medium. It is noted that, the closest prior art, Danknick (USPN 5,548,728) teaches an apparatus for partitioning a ring buffer into two partitions and further dividing the ring buffer into finer granularities if necessary (see column 27 lines 55-65). However, the claim language of claims 4-8, 13 fall within the provisions of 35 U.S.C. 112, 6th paragraph. Thus the claims are construed to cover the corresponding structure, material, or acts described within the specification. The portions of the specification supporting the claim language of claims 4-8, 13 are on page 9 section [0031] lines 1 – page 15 section [0050] line 2 and pages 17-18 entire section [0060].

10. Claims 9-12 are allowable over the prior art of record because none of the prior art of record teaches or fairly suggests a system or method for partitioning a ring buffer into two partitions based on the external writes/reads request pattern to a recording medium and changing the respective sizes of the two partitions according to the writes/reads requests patterns.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

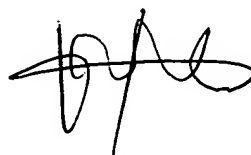
12. Any inquiry concerning this communication from the examiner should be directed to Fred Tzeng whose telephone number is 571-272-7565. The examiner can normally be reached on weekdays from 9:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571-272-7843. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 571-273-7565 for After Final communications.

13. Informal regarding the status of an application may be obtained from the Patent Application Information Retrieval (**PAIR**) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Fred F. Tzeng', with a stylized, cursive script.

Fred F. Tzeng

June 4, 2005